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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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2194

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/828,381	Applicant(s) CHEN ET AL.	
	Examiner Sue Lao	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43, 45, 46 and 48-55 is/are pending in the application.
- 4a) Of the above claim(s) 42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-22, 25-39, 41, 43-55 is/are rejected.
- 7) ☒ Claim(s) 12, 23, 24 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 1-43, 45, 46, 48-55 are pending. This action is in response to the amendment filed 4/5/2005. Applicant has amended claims 3, 22, 43, 45, 46, 48, 50 and 52, canceled claims 44 and 47, and added claims 53-55.

2. Applicant is reminded that the non-elected claim (claim 42) needs to be explicitly canceled.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-11, 13-22, 25-39, 41, 43, 45, 46, 48-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharrit et al (U. S. Pat. 5,999,990) in view of Savitzky et al (U. S. Pat. 5,337,412).

As to claim 1, Sharrit teaches

a reconfigurable wireless network communication apparatus (communicator 10) comprising a plurality of kernels (configurations of reconfigurable resource units RRUs);

a plurality of software objects (library of configuration files) including a first subset of said software objects (one set / different set of processing functions), each software object in said first subset of said software objects associated with (used to configure RRUs) a different kernel in said plurality of kernels so that a change to a software object (new / updated configuration files, cot. 4, lines 14-15) in said first subset of said software objects results in a change in said kernel (RRUs restructure themselves in accordance with the configuration information) associated with said software object. See cot. 1, line 54 - cot. 2, line 58. It is noted a set of RRUs with its respective configuration form a kernel which typically is a collection of system management functions.

While Sharrit provides a virtual machine interface (dynamically reconfigured RRUs) for the reconfigurable wireless (cot. 10, lines 46-50) network communication

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apparatus (communicator), Sharrit does not teach that the plurality of software objects are packaged into an object-oriented virtual machine interface.

Savitzky teaches packaging the plurality of software objects (components / objects, col. 3, lines 60-63) into an object-oriented virtual machine interface (REST object-oriented application framework, col. 3, lines 33-55) for a reconfigurable (capable of communicating with almost any remote machine) network communication apparatus. Col. 5, lines 24-67.

Therefore, it would have been obvious to package the plurality of software objects into an object-oriented virtual machine interface for the reconfigurable wireless network communication apparatus in Sharrit. One of ordinary skill in the art would have been motivated to combine the teachings of Sharrit and Savitzky because Sharrit desires incorporating new services to reconfigure resources (col. 5, lines 52-57) and Savitzky provides a mechanism to do so (col. 21, line 65 - col. 22, line 8).

As to claim 2, Sharrit teaches said plurality of software objects includes a second subset (library of configuration files) of said software objects, each software object in said second subset of said software objects having at least one adjustable attribute (new / updated configuration files, one set / different set of processing functions). Col. 1, line 54 - col. 2, line 58.

As to claim 3, Sharrit teaches at least one adjustable attribute is a static or dynamic attribute (dynamically altered processing). Col. 1, lines 56-59.

As to claim 4, Sharrit teaches a kernel in said plurality of kernels is configurable in accordance with a communication protocol (transmit/receive signals into/from wireless communication channel). Col. 2, lines 6-11.

As to claims 5-8, CDMA and its variations: IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, WCDMA, cdma2000, and ARIB WCDMA, and TDMA and its variations such as IS-136 TDMA are well known wireless communication protocols. Therefore, it would have been obvious to support these protocols/configurations in the communicator of Sharrit.

As to claim 9, Sharrit teaches a software object in said plurality of software objects is a searcher object, a code generation unit object (linkage functionality, col. 5,

lines 56-57) or a finger object. It is noted that the three alternatives linked by "or" is interpreted as requiring only one alternative.

As to claim 10, Sharrit teaches a software object in said plurality of software objects is a matched filter object or a combiner object (combine RRU/functions, col. 8, lines 17-40). It is noted that the two alternatives linked by "or" is interpreted as requiring only one.

As to claim 11, uplink and downlink are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement uplink and downlink functions, with corresponding software objects, in Sharrit.

As to claim 13, note discussion of claim 1. Further, Sharrit as modified by Savitzky provides virtual machine (Savitzky, object-oriented application framework, col. 3, lines 33-55).

As to claims 14-15, note discussions of claims 2-3, respectively.

As to claim 16, Sharrit as modified by Savitzky teaches (Savitzky, object-oriented application framework) an application program interface comprising a plurality of software routines (API of classes), each software routine in said plurality of software routines representing a different communication protocol (machine models), wherein said plurality of software routines comprise software calls to said plurality of software objects (API); and an application program comprising software calls to said plurality of software routines (application layer 140). Col. 5, line 23 - col. 6, line 64.

As to claims 17, 20, Sharrit teaches compiling functionality (linkage functionality, col. 5, lines 56-57). Therefore, it would have been obvious to use a compiler to provide such functionality. Further, JIT compiler for JVM was well known at the time when the present application was filed. Translating is a default function of a typical compiler.

As to claims 18, 21, Sharrit teaches resource allocator (resource allocation unit) configured to receive said machine-readable instructions and issue a signal/command to configure a kernel in said plurality of kernels. Col. 7, lines 14-67.

As to claim 19, Sharrit as modified by Savitzky teaches (Savitzky) application program for utilizing said plurality of software objects (application layer 140, Col. 5, line 23 - col. 6, line 64).

As to claim 22, note discussion of claims 9 and 11.

As to claims 25-28, note discussions of claims 5-8.

As to claim 29, it is basically a method claim of claim 1, thus note discussion of claim 1. Sharrit as modified by Savitzky further teaches reconfigurable multi-protocol communication (Sharrit, support new and modified signal formats, support wireline and wireless communications, col. 8, lines 45-51; col. 10, lines 46-50), interconnect structure (Savitzky, framework, fig. 2), and attribute value (Sharrit, processing functions, col. 2, lines 35-50; Savitzky, component's state, fig. 7).

As to claim 30, Sharrit as modified by Savitzky teaches a hierarchical relationship (class hierarchies of the object-oriented framework).

As to claim 31, Sharrit as modified by Savitzky teaches (Savitzky) an application Program (application layer) that includes software calls (APIs) to said plurality of software objects.

As to claims 32, 34, the reconfigurable hardware and software of the system of Sharrit as modified by Savitzky provides a virtual execution environment for each combination of application and communication protocol, ie, providing a software virtual machine. Sharrit as modified by Savitzky teaches issuing an instruction for controlling a kernel in said plurality of kernels (controller, user). Such instruction being issued from the software virtual machine / environment would have been an obvious choice in view of the system architecture of Sharrit as modified by Savitzky which interfaces a user and the system hardware resources.

As to claim 33, note discussion of claim 17.

As to claim 34, Sharrit as modified by Savitzky teaches issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels.

As to claim 35, note discussion of claim 16.

As to claim 36, note discussion of claim 16.

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As to claim 37, it is basically a program product claim of claim 29, thus note claim 29 for discussion. Note the equivalence of instantiating/creating.

As to claim 38, note discussion of claim 35 and the equivalence of plurality of standards / plurality of protocols.

As to claim 39, note discussion of claim 9 for code generation unit object. Search, finger, uplink and downlink are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement search, finger, uplink and downlink functions, with corresponding software objects, in Sharrit as modified.

As to claim 41, note discussion of claim 5.

As to claim 43, it is basically a method claim of claim 1 and thus note claim 1 for discussion, in particular, the limitation of an object-oriented virtual machine interface ... said software object. Providing such an object-oriented virtual machine interface would have been inherent to the system of Sharrit as modified by Savitzky. Sharrit as modified by Savitzky further teaches (Savitzky) parsing an application program that designates a communication protocol (application services, col. 7, line 21 - 50). Producing machine readable data is a necessary step to realize the control / reconfiguration functions of Sharrit as modified. Further, Sharrit teaches compiling functionality (col. 5, lines 56-57) which typically includes parsing and code generating. Sharrit teaches first software object selected from the plurality of software objects (controller allocate RRU, col. 1, line 54 - col. 2, line 5).

As to claims 45, 48, Sharrit teaches function or procedure (library, discussion of claim 1).

As to claim 46, note discussion of claim 43.

As to claims 49-52, Sharrit as modified teaches (Savitzky, fig. 2) one software object objects is associated with at least two kernels and at least two kernels are associated with one software object in that one application can output to more than one devices (copier and fax machine) and more than one application can access the same device (such as fax machine).

5. Claims 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharrit et al in view of Savitzky et al as applied to claims 1, 13 and further in view of Kwon et al (U. S. Pat. 6,151,328).

As to claims 53-55, Kwon teaches that wireless communication functions, including searcher (searcher 117), finger (finger 119), and matched filter (filters 114-116). Col. 10, line 53 - col. 11, line 12. Further, uplink and downlink are also typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication with corresponding software objects. Therefore, it would have been obvious to implement searcher, finger, matched filter, uplink and downlink functions, with corresponding software objects, in Sharrit. One of ordinary skill in the art would have been motivated to combine the teachings of Sharrit as modified and Kwon because Sharrit desires adapting to varying system requirements (col. 1, lines 54-56) and Kwon provides a mechanism to do so (in consideration of different channel environments, col. 1, lines 55-60).

6. Claims 12, 23, 24, 40 appear to define over the prior art on record and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, subjected to a final search update.

7. Applicant's arguments filed 4/5/2005 have been fully considered but they are not persuasive.

Applicant argued that "Sharrit's libraries are not software objects. There is no association between Sharrit's library files and different ones of the RRUs. On the other hand, the claimed software objects are associated with respective kernels. This claimed relationship between the software objects and the underlying hardware makes it easier for a user to prepare and analyze an application program, and shortens the time for the user to convert from one communication protocol to another." (remarks, page 16).

The examiner's response is that Sharrit's libraries are software objects because these are a library of configuration files which are software entities / objects. The

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association between Sharrit's library files and different ones of the RRU's is taught by the configuration files which correspond to respective RRU's (col. 6, lines 23-41). It is noted a set of RRU's with its respective configuration form a kernel which typically is a collection of system management functions.

Regarding the argued relationship between the software objects and the underlying hardware being "makes it easier for a user to prepare and analyze an application program", and "shortens the time for the user to convert from one communication protocol to another", these features are not claimed. See claims 1-43, 45, 46, 48-55.

Applicant further argued that "the applied references do not suggest a change to a software object resulting in a change in the kernel associated with the software object. Sharrit's library files are merely read-only tools which are not changed." (remarks, page 16).

The examiner respectfully disagrees. To the contrary of applicant's argument, Sharrit does not state that the library file are merely read-only tools. Sharrit teaches these are a library of configuration files which are updatable software entities/objects. These software objects / configuration files are changed by updating and/or introducing new versions (PC delivers new and/or updated configuration files to controller 16, col. 4, lines 14-16), and the controller uses such configuration to reconfigure the RRU's (change from one set to a different set of processing functions, in accordance with the configuration information, col. 2, lines 35-50; col. 1, lines 61-64).

Applicant's arguments are therefore not persuasive.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and

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any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Lao whose telephone number is (571) 272-3764. A voice mail service is also available at this number. The examiner's supervisor, SPE Meng-Ai An, can be reached on (571) 2.72 3756. The examiner can normally be reached on Monday - Friday, from 9AM to 5PM. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 16, 2005



SUE LAO
PRIMARY EXAMINER